<laboratoria>
code that transforms

Kit de Bienvenida 2017

Brief

Global workforce

Insights

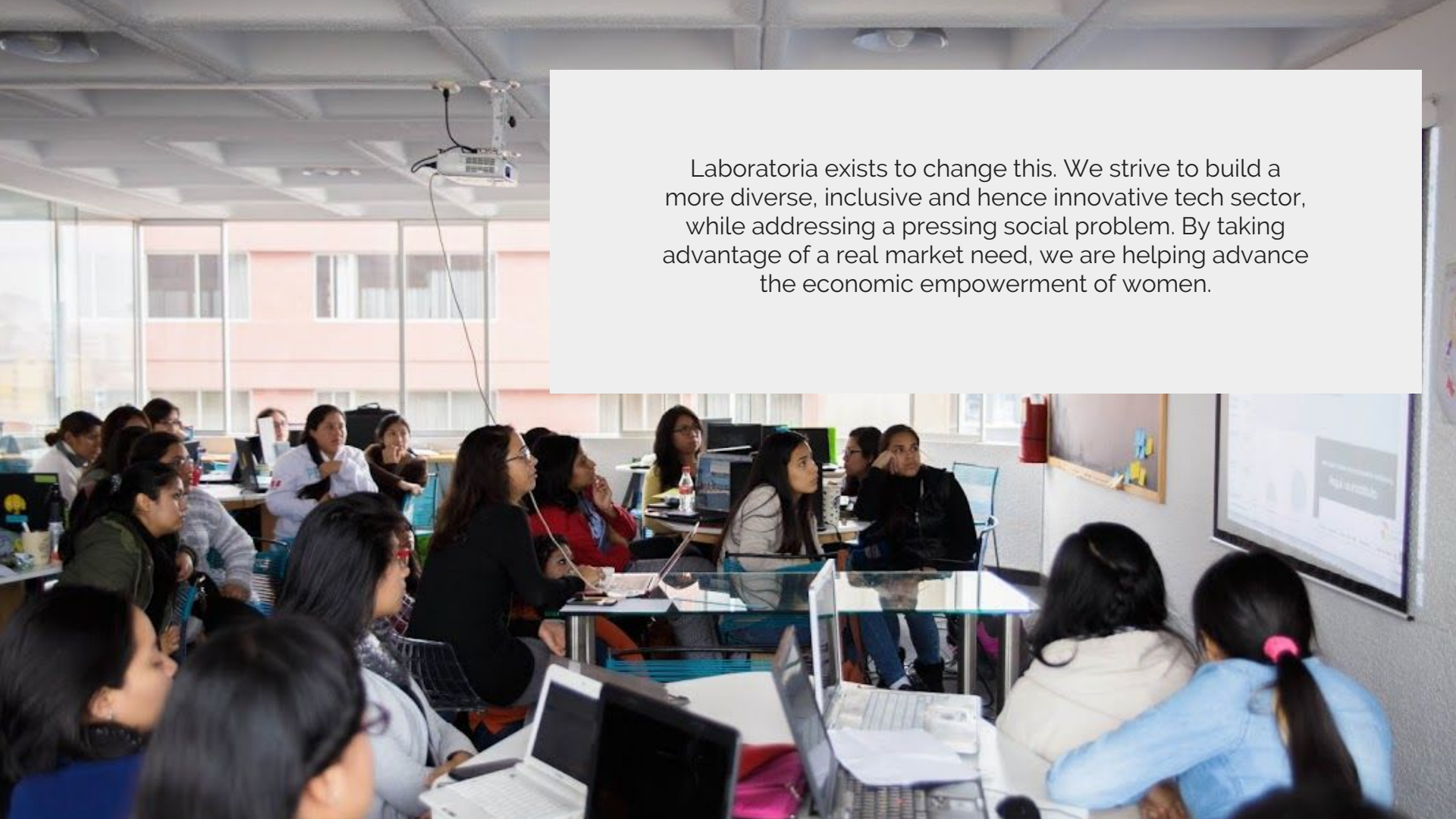
the problem

The lack of quality education and job opportunities for young women from low-income backgrounds

Quality higher education in Latin America is a privilege, with only 10% of youth graduating technical institutes or universities. Despite this limited access, higher education is still the main vehicle to a decent job. In consequence,a majority of youth in the region – 55% according to ILO data - ends up working in the informal economy,with limited opportunities for growth and social mobility.

Women tend to be at a greater disadvantage than men, with lower salaries and only 54% of women of working age actually working (compared to 75% of men).

Additionally, there are over 20 million youth who do not study or work, and 70% of them are women.
At the same time, the tech sector offers untapped employment opportunities: according to the Inter-American Development Bank, software development will be the fastest growing career in the next decade, with Latin America needing over 1.2 million developers by 2025. Moreover, the tech industry desperately needs gender diversity. Although the lack of women in tech is a global phenomenon (in 2013 only 26% of people involved in computer science in the United States were women), the gender gap in Latin America is significantly higher, with under 10% of professionals in the fi eld being women.



Laboratoria exists to change this. We strive to build a more diverse, inclusive and hence innovative tech sector, while addressing a pressing social problem. By taking advantage of a real market need, we are helping advance the economic empowerment of women.

Our solution

We find talented young women and prepare them to work in the digital market

Through a rigorous selection process, we identify young women aged 18 to 30 from low income segments with potential to learn web development and work as coders.

After a rigorous selection process, those admitted are enrolled in an immersive 5-month training program at Laboratoria's Code Academy, where students achieve an intermediate level on the most common front-end web development languages and tools: HTML5, CSS3, JavaScript, Bootstrap and Github. Technical development is complemented with a personal development program that helps students build the soft skills needed to perform well at work and unleash their full potential.

Upon graduation, students are placed in the job market through a network of partner companies in need of junior web developers. Laboratoria follows up monthly on workin graduates to support their succesful transition to sustainable employment.

While the bootcamp part of the program is implemented at no cost for students, to ensure it remains accesible to low-income women, once graduates secure a job they enroll in a repayment scheme. Laboratoria retains a decreasing percentage of their salary for 18 months to recover the bootcamp costs and advance towards a sustainable model. During this period of time, as an incentive to maintain alumni engaged, Laboratoria will soon begin to off er a continuing education program through blended courses designed to help our graduates advance their professional development. These courses will be at no additional cost for Laboratoria alumni, and will also be open to a broader paying public, contributing to our sustainability.

Impact & results

70% of graduates secured a job in the digital sector, representing a 3.2x growth in their income level

Through a rigorous selection process, we identify young women aged 18 to 30 from low income segments with potential to learn web development and work as coders.

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Since its founding in 2014, Laboratoria has prepared over 150 young women with limited economic opportunity but unstoppable dreams to become web developers.

Over 70% of them have secured employment in the tech sector, tripling their income and
significantly improving their socio-economic conditions. Our graduates have become a source of inspiration for thousands of other young women, growing as leaders and representing the enormous potential the Latin American tech sector has to become a source of opportunity for women.

We currently operate four training centers across the region, in Lima, Arequipa, Santiago de Chile and Mexico City. Classes are imparted under a blended learning methodology, with a tailor-made curriculum we have developed in partnership with hiring companies to ensure it responds to market demand. Furthermore, we have a practical education methodology that helps our students become avid self-learners. As an organization, we have a continous learning cycle to incorporate lessons learned form all chapters and strengthen the program.

Scalability and future plans

By 2020, Laboratoria expects to reach and train 10,000 young women as coders

With a validated impact model, Laboratoria is in the process of designing a scale-up strategy to have 10 training centers across the largest Latin American cities and over 10,000 developers trained in the next fi ve years.

To accomplish this goal, we are developing a blended learning platform to facilitate a consistent scale-up, as well as expanding our curricular off er to fi ll more talent gaps within the tech industry.

In addition to training low-income women as developers, we are planning on expanding our off er to include a broader population as a means of contributing to

Laboratoria's sustainability. Our vision is to have a Latin American tech setor that leverages on Laboratoria's talent to spur its growth. We want to be part of building a sector that becomes an example for its diversity and its quest to bring in talent from places that have been forgotten by most industries.

Global workforce

target profile of our students

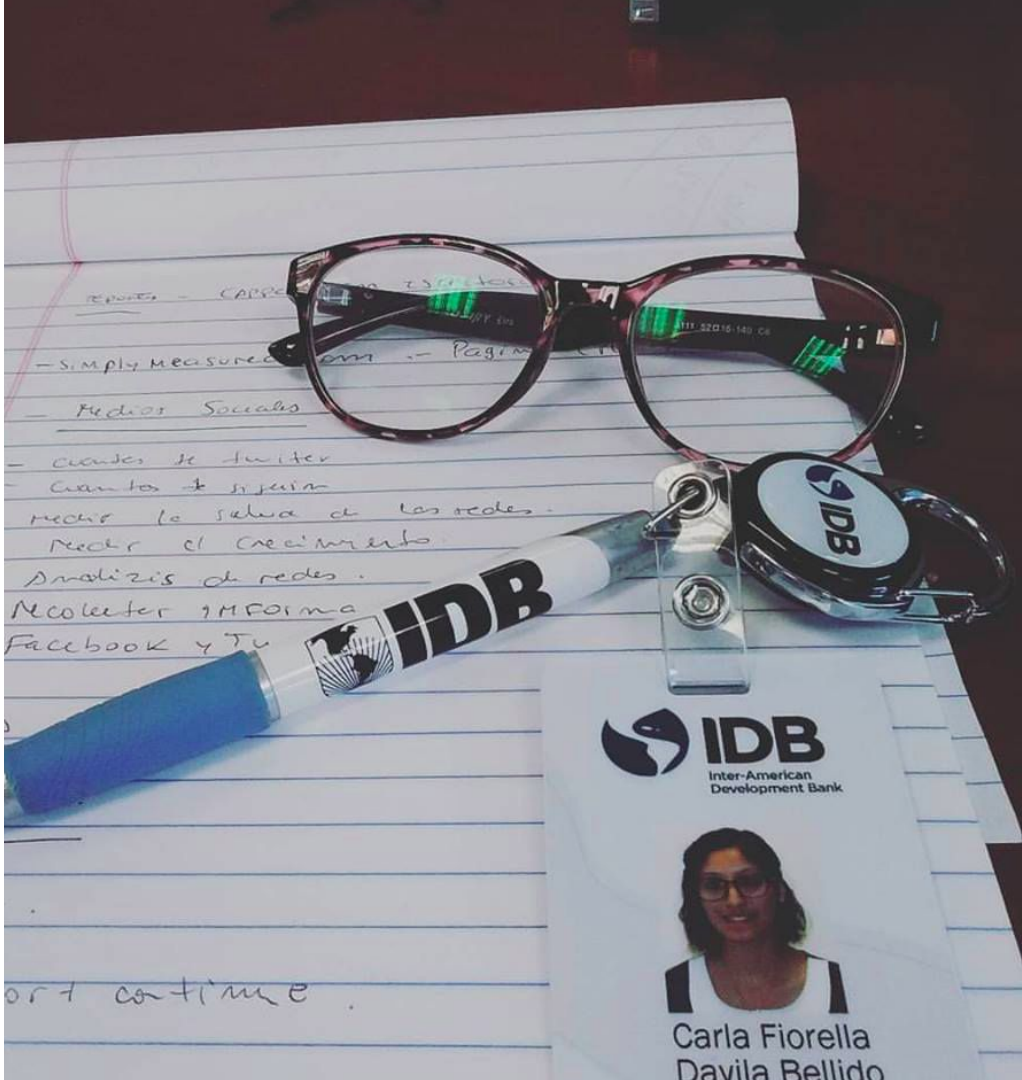
Meet Carla.
She is a typical Laboratoria student.

Carla is a 21-year old from Lima's over populated Cono Norte. She finished high school in her local district and then spent a year helping her mom at home. She then joined a technical institute of poor quality and reputation - it was all her family could afford. Two years into her communications major, she had to drop out. Her father fell ill and now it was her turn to provide for the family. She got a job at a local call center, making US$ 130 per month. She was living with her parents, her grandmother, and her siblings; and her family's monthly income amounted to US$ 450. She heard about Laboratoria and decided to apply, despite not having any technical background. She was accepted given her proven potential to learn how to code.

target profile of our students

Meet Carla.
She is a typical Laboratoria student.

After graduating from Laboratoria bootcamp in 2015, Carla started to work in CinePapaya, the most successful startup in Peru. In 2016, she participated in a recruitment process to get a summer internship in the IT department of the IDB in Washington DC. She was accepted together with 2 other students from Laboratoria. She took the job and the challenge that came with it, as it was her first time traveling outside Peru and her first time living by herself. She is exceeding expectations. Given her strong results, her internship was extended and she is now making $2900 USD/month.



impact & growth

2016

- 400 developers trained
- 80% job placement rate
- 3x increase in income
- 4 training centers

2021

- 10,000 women trained
- 85% job placement rate
- 4x increase in income
- 12 training centers

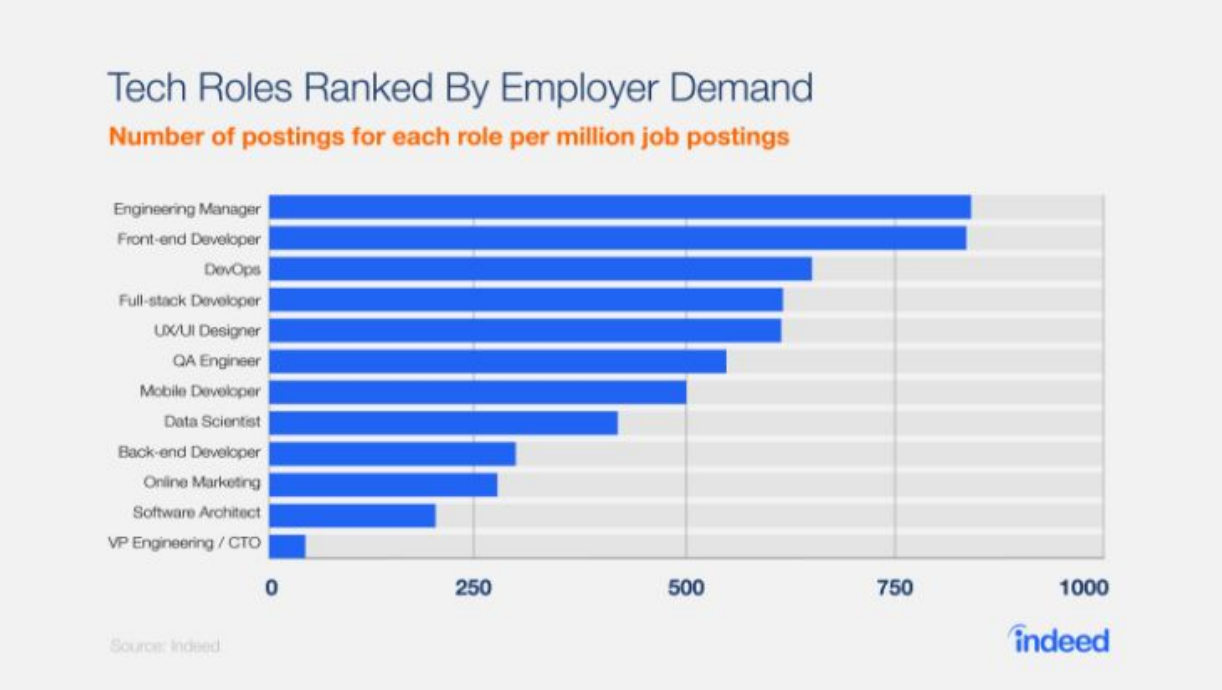
our goal

Become the leading source of female talent for top tech companies all over the world.

education: focused on the most demanded tech and soft skills

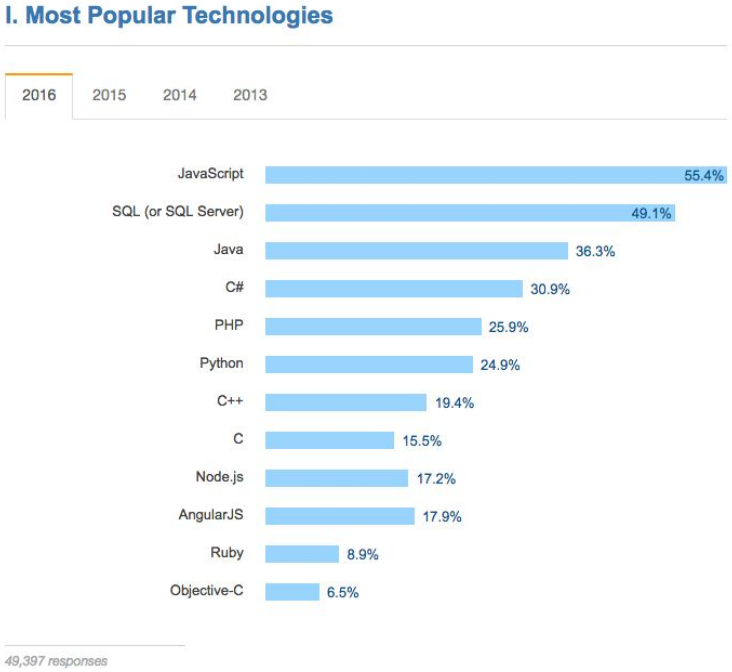
	bootcamp	continuing Ed
Syllabus	Front-End Development Bootcamp (see PDF)	Full Stack JS Developer (see PDF)
Goals	50% obtains +50% percentile in Lytmus Assessment Test	80% obtains +75% percentile in Lytmus Assessment Test.

US market demand by tech roles

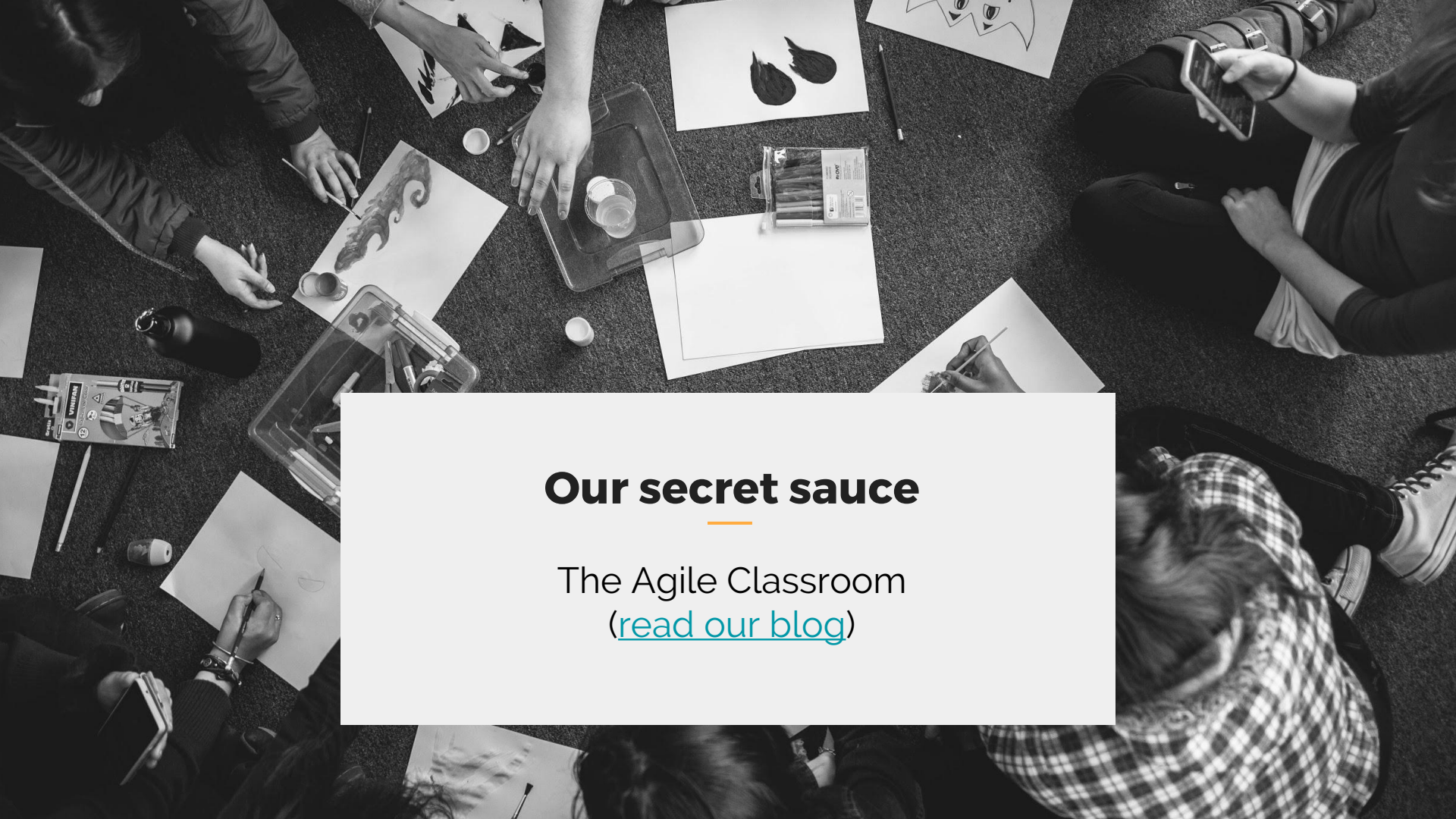


http://blog.indeed.com/2016/08/18/what-are-hardest-jobs-fill-in-tech/

technologies more used around the world



http://stackoverflow.com/research/developer-survey-2016



Our secret sauce

The Agile Classroom
(read our blog)

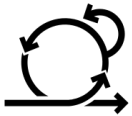
learning sprints = short feedback loop

Daily Standup
- Coordination

Sprint Planning
- Plannning

Retrospective
- Learning

learning sprints = short feedback loop



At Laboratoria we run Learning Sprints.

A Learning Sprint is a time-boxed effort (usually 2 to 3 weeks) in which students commit to achieving certain learning outcomes

Each Sprint starts with a Sprint Planning Meeting, where students plan ahead and size the amount of effort required during the next few weeks; and ends with a Sprint Retrospective, in which students reflect on the work carried out, identify lessons learned and determine areas for improvement.

Learning Sprints allow students to receive frequent and early feedback is crucial.

squads = collaboration

At Laboratoria, students learn in teams, which, inspired by Spotify, we call “Squads”.

A Learning Squad is a group of 6 to 8 students that work together as a team to complete the goals defined in a Sprint

Learning Sprints are designed to have goals at the individual level AND at the Squad (group) level

Every Squad has a coach that identifies and eliminates barriers, and fosters teamwork and collaboration

Squads are independent and autonomous i.e. they decide how to plan the Sprint, how to organize themselves, and how to track progress

What makes us different

Our talent pool, our innovative education model and our hands-on placement process.
But above all, our bold vision:

By 2021 we strive to be the leading source of female tech talent globally, leveraging on an innovative education model that drives social mobility for low-income women in Latin America.

our value proposition

Finding Potential

- Our selection process looks for talent where nobody else is looking for.
- We enable talented low-income women with an opportunity to transform their future, creating significant economic impact.

Preparing Great Developers

- Laboratoria's curriculum is constantly being adapted to graduate developers ready for the competitive market.
- Our agile education approach prepares students for work, building technical, personal and professional skills that give graduates the ability to adapt and continue learning throughout their careers

Placing Talent

- We place talent locally and want to expand our talent placement globally (via remote work or relocation).
- We offer hiring companies tailored assistance during the placement process to ensure they hire a developer that matches their needs.
- We follow-up on employers to receive valuable feedback on graduate's performance, and improve the program accordingly.
- Continuing education helps graduates stay competitive in the market and enables them to grow professionally.
- Our continuing education program will be open to our graduates' peers, helping our employer partners keep their talent fresh and updated.

our core strengths

Everything we do in Laboratoria is focused on maximizing and improving the tech employment opportunities for our coders.

To achieve this, we leverage on the following strengths:

1) Long lasting relationships with top companies and deep understanding of the local and global market dynamics and trends.

2) Flexibility to improve our program to better respond to market needs, reinforcing our recruitment, training and placement processes with frequency.

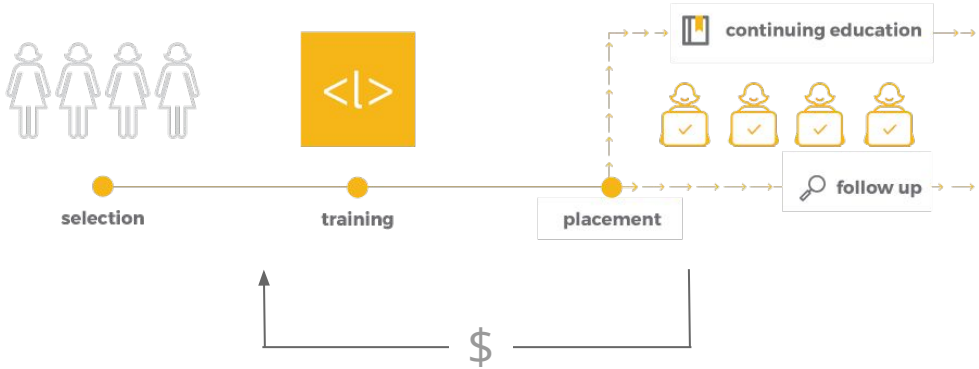
3) Relentless focus on building the best female talent to work in tech, equipped with highly demanded technical and social emotional skills. Our coders have overcome adversity and this has made them stronger. They stand out due to their commitment and desire to succeed in life. Companies fulfil a need while bringing diversity to their teams and having a social impact.

We have built these strengths overtime, aspiring high, but always keeping our feet on the ground. They will drive us to become a **“trusted source of female tech talent all over the world”.**

Insights

our model

The journey of our students at Laboratoria begins with a thorough selection process to join an immersive 6 month coding and personal development bootcamp. Upon graduation from the bootcamp, we connect graduates with employment opportunities and continue offering them blended, part-time education.



Students start paying once they find a job

SELECTION PROCESS

Training process

Placement process

Measuring our impacts

selection process introduction

The selection process is the first step in Laboratoria's education and job placement program. Here, we identify talented women with limited economic resources who are eager for this opportunity and who demonstrate certain cognitive and socioemotional abilities that help us predict future success.

For each new cohort, we implement a rigorous student selection process that **emphasizes potential for learning over prior knowledge or experience** and aims to identify the best talent among disadvantaged young women with a thirst for getting ahead.

profile of our graduates

Age	**17-20 yrs.**	**21-25 yrs.**	**26-30 yrs.**	**30-35 yrs.**
	34%	48%	15%	3%

Max level of education	**Middle school complete**	**High school incomplete**	**High school complete**	**Higher education incomplete**	**Higher education complete**
	0.5%	3%	30%	37%	22%

Prior Employment	Prior employment of Laboratoria students vary. Examples of prior jobs are call center attendant, housekeeping, "mom and pop" shop attendant, and administrative assistant.

Monthly Personal Income	**$0 - $15**	**$16-$125**	**$126 - $235**	**$236 - $345**	**$346 - $455**
	16%	37%	32%	11%	4%

Monthly Family Income	**$134-$360**	**$361-$590**	**$590-$820**	**$820-$1045**
	68%	26%	4%	3%

$ - US Dollars

The student selection process has five main KPIs

1	2	3	4	5
# of APPLICANTS (A)	**% ADMISSION RATE (AR)**	**% ENROLLED (E)**	**DROP-OUT RATE (DR)**	**% NOT RECOMMENDED (PNR)**
# of candidates who completed the selection process	% of applicants admitted to the program	% of admitted applicants who begin the program and remain in the program for at least 2 weeks	% of students who drop out of the program after week 2	% of graduates who are not recommended for employment

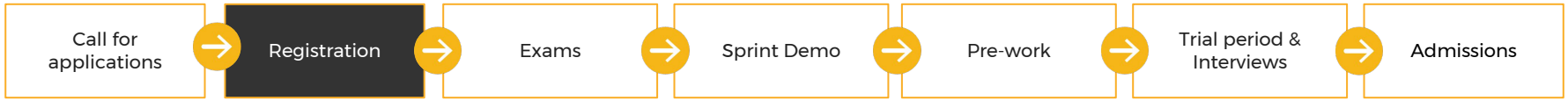
current model

Call for applications → **Registration** → Exams → Sprint Demo → Pre-work → Trial period & Interviews → Admissions

We invite young women to apply through a “call for applications” campaign that lasts about 1.5 months.

- **90%** of our applicants learn of the program through facebook (high penetration rate in LATAM)
- We invest **~$1,000** per city in social media ads and posts, per campaign
- We also have occasional media appearances that showcase events we participate in, or press releases focused on the call for applications.

current model



1) Registration form on laboratoria.la/postula

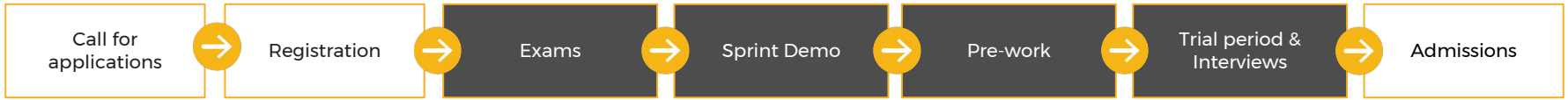
- Basic contact information
- Once registered, applicant receives the preliminary baseline survey questionnaire in her e-mail and an invitation to join a facebook group with other candidates

2) Preliminary baseline questionnaire directly on our online platform

- Applicants provide socio-demographic information and we evaluate "profile fit" (pre-filter)
- Applicants choose date and time of session for exams.
- Their personal username and password is automatically created (same personal ID for M&E purposes)

In order to reduce drop-out rates during the selection process (ie. applicant registers but doesn't show up for exams), we implement an engagement strategy where we are constantly in contact with candidates, sharing information and motivating them to join <l>.

current model



1 Cognitive and socio emotional EXAMS

- Baseline Survey questionnaire
- Cognitive and logic exam
- Grit scale
- Neo-Pi-r Personality Test
- Reading comprehension exam

WHAT IT EVALUATES

- Complete socio-economic profile
- Ability to abstract, follow instructions, problem solve
- "Drop-out" risk
- Red flags
- Ability to learn

FIRST FILTER (150-200 students)

2 SPRINT DEMO & remote PRE-WORK

- Introduction to agile and "squad" assignment
- ~20 hrs of basic programming courses (Platzi | Khan Academy)

- Commitment
- Enthusiasm for learning
- Basic programming abilities

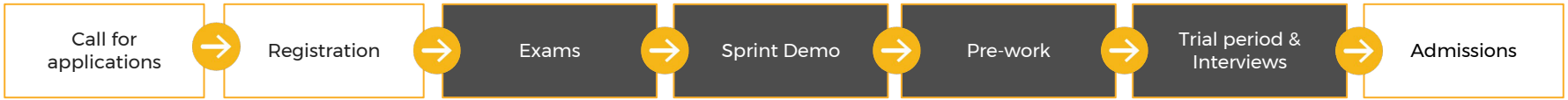
3 TRIAL PERIOD

- 1st learning sprint (programming fundamentals)
- Personal Interviews

- Programming abilities
- Confirmation of "profile fit"
- Key socio-emotional skills

FINAL SELECTION (80-90 students)

current model



We are looking for predictors of talent (the ability to learn something new, quickly and well)**, and predictors of success** (completion of the program with recommendation for employability and employer satisfaction). For this, we evaluate both cognitive and socio-emotional skills.

1) **Cognitive Skills**

- We decided on a reading comprehension exam because according to our research, it's one of the most effective measures in predicting the ability to learn something new. The topic of the exam is basic programming in order to introduce/mimic the type of content they would learn in the program.
- We are testing for programming logic as well (through the cognitive and logic exam), however we don't yet have evidence as to its predictability (preliminary runs show a correlation of 0.6 between reading comprehension exam and logic exam).

2) **Socio-Emotional Skills**

- The grit scale is used mainly to measure the risk of a student dropping out
- The trial period is especially important for evaluating soft skills that are crucial for success (teamwork, tolerance for frustration, humility, eagerness to learn, leadership).

Selection process

TRAINING PROCESS

Placement process

Measuring our impacts

We measure student learning in two main areas:

1. **Tech-skills:** being able to carry out the work of a Front-End Developer

2. **Life-skills:** having the socio-emotional strength and attitude to perform well in the workplace

tech-skills development

We teach students to become awesome JavaScript Developers.

immersive bootcamp
6 months full time

continuing education
18 months part-time

front-end

- HTML5
- CSS3
- Programming Fundamentals
- JQuery
- AJAX,JSON & APIs

CS fundamentals

- Computer Science fundamentals (Algorithms, Data structures & Programming Paradigms)
- Node.js integration
- HTTP Protocol
- Angular JS
- Web Architecture

full-stack

- Back-end development with Node.js & Express
- Database modeling
- Test Driven Development
- Deployment

full-stack master

- Microservices
- Test automatization
- Performance
- Fashion JS
- Professional project

English for Developers

life-skills development

At Laboratoria, we don't just teach and measure technical skills. We also focus on life-skills, specifically:

COMMUNICATION	STRESS MANAGEMENT	RESPONSIBILITY	TEAMWORK
- Expression - Listening - Participation - Communicating errors	- Adaptability - Openness to change - Emotional state	- Attendance - Punctuality	- Collaboration - Attitude - Conflict resolution
Assessed by psychologists and teachers every 2-3 weeks	Students must **notify and justify** being late and not attending		Assessed by fellow peers through a 360 survey every 2-3 weeks

socio-emotional mentorship

We also have professional psychologists who lead socio-emotional mentorship sessions with students once a week, focused on:

SELF-KNOWLEDGE

- Self-awareness
- Gender

SELF-ESTEEM

- Acknowledging potential
- Empowerment

EMOTIONAL REGULATION

- Managing emotions

SOCIAL RELATIONSHIPS

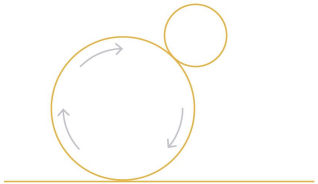
- Empathy
- Working in teams

how we teach

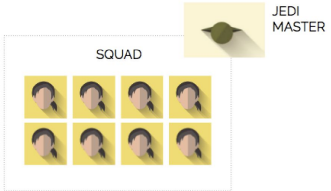
the agile classroom

We've developed a specific teaching methodology that we call the Agile Classroom. It's about integrating Agile values - such as collaboration, frequent feedback and reflection time- into the classroom.

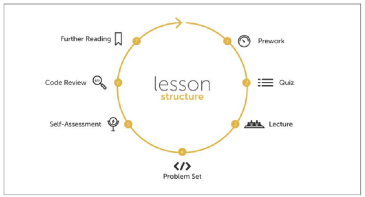
[Read our blog](#)!



learning sprints



learning squads



problem solving

gamification

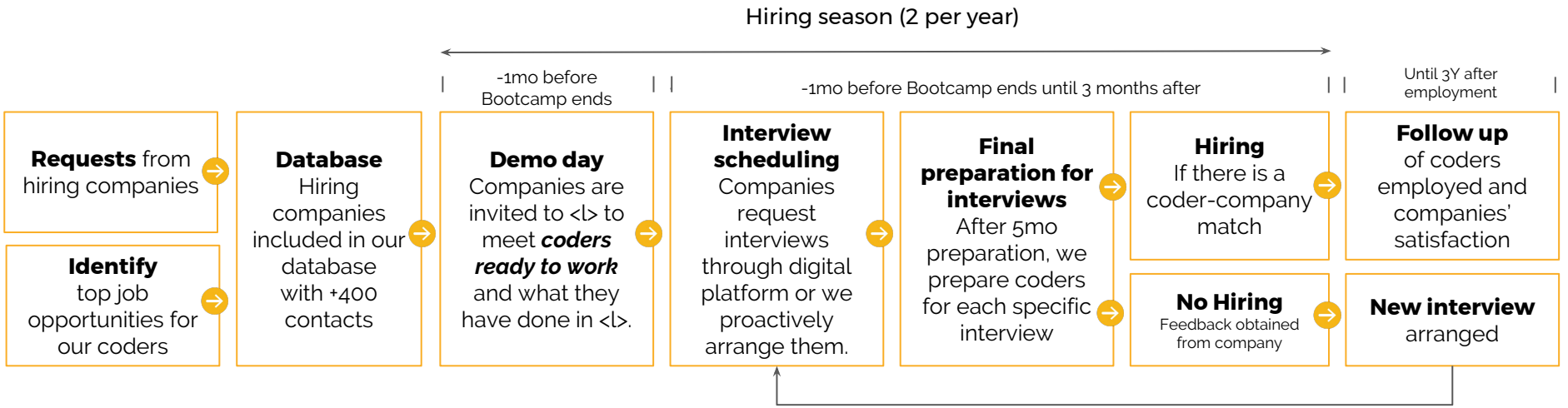
Selection process

Training process

PLACEMENT PROCESS

Measuring our impacts

job placement - current model

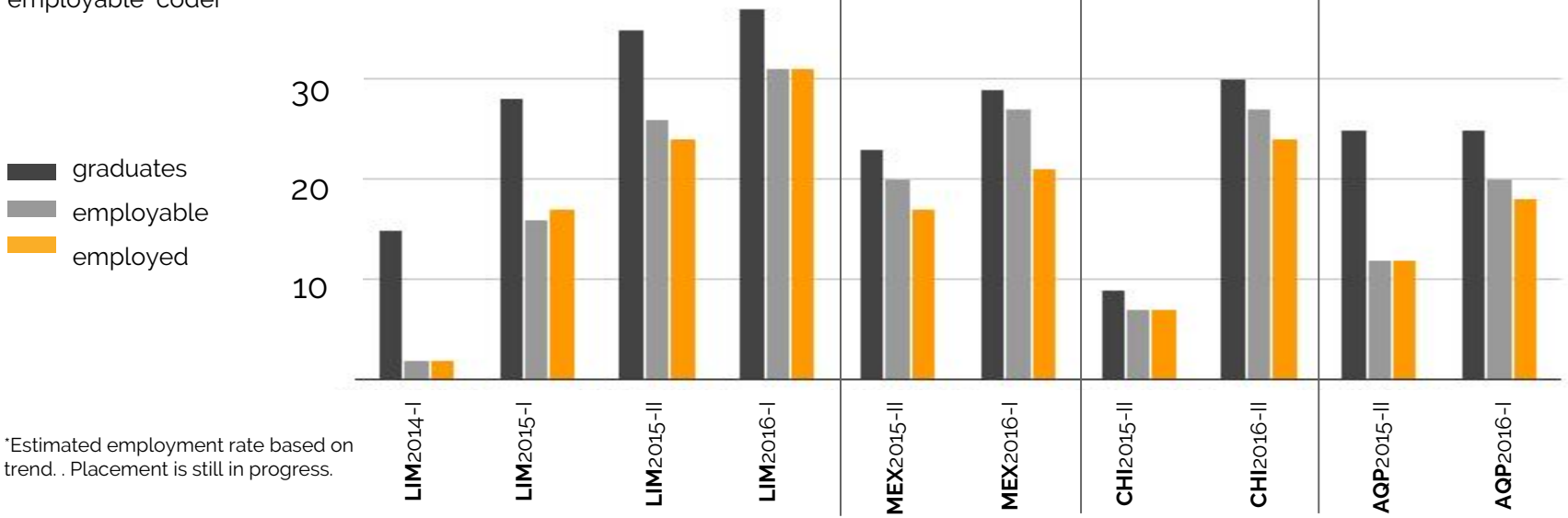


- **Input to <l>:** We constantly gather feedback from top companies to improve our program.
- **Hiring off season:** If top companies ask for coders, we invite employed coders with +6mo in their current job to apply. For other companies, we invite them to wait until the next hiring season.
- **Job transition**: Sometimes coders are not satisfied with their current job. We support them to move to a new job and provide constructive feedback to the company.
- **Job loss**: In limited cases, coders do not perform well at work. If a job is lost, we do damage control with the company, share feedback with the coder and replace her if she is ready to work.

graduates vs employability & employment

This chart shares per city and per cohort, the number of students **graduated**, how many of them were **ready to work** and how many of them **got a job** in tech.

	LIMA				MEXICO		CHILE		AREQUIPA	
Employability rate	13%	57%	74%	**84%**	78%	**93%**	87%	**90%**	48%	**80%**
Employment rate per graduated coder	13%	61%	69%	**81%**	74%	**72%**	78%	**80%***	48%	**72%***
Employment rate per employable coder	100%	106%	92%	**100%**	85%	**78%**	100%	**89%**	100%	**90%**



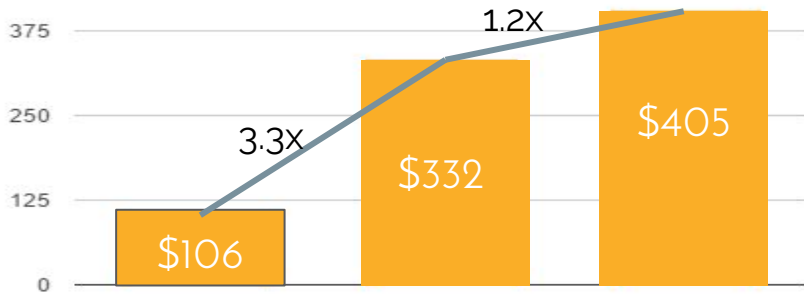
*Estimated employment rate based on trend. . Placement is still in progress.

KPIs - career growth

We expect our coders to not only secure a job, but kickstart a career.
We measure several indicators that reflect this type of professional growth.

64%

of coders employed got a salary increase after 6mo, equivalent to 20% more.



$32 Is the average amount coders can now save per month.

63% Of them have had an increase in their responsibilities after 6 months working.

4/5 Is the average qualification from hiring companies for our coders.

**data from LIM20151. Being updated to include all countries for 2015 II*

Selection process

Training process

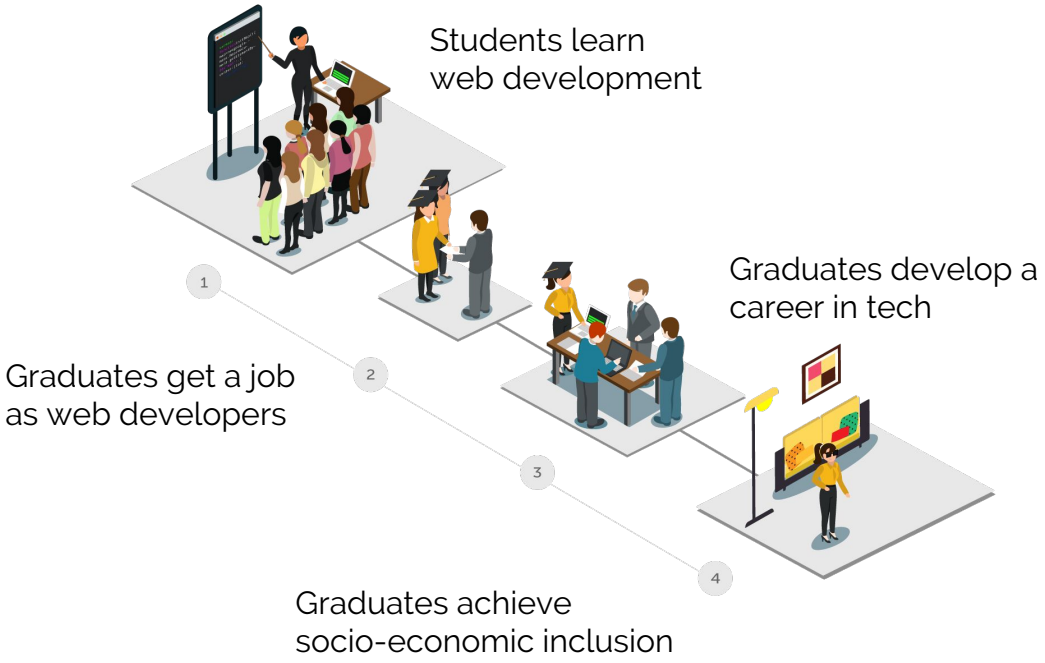
Placement process

MEASURING OUR IMPACT

Impact indicators

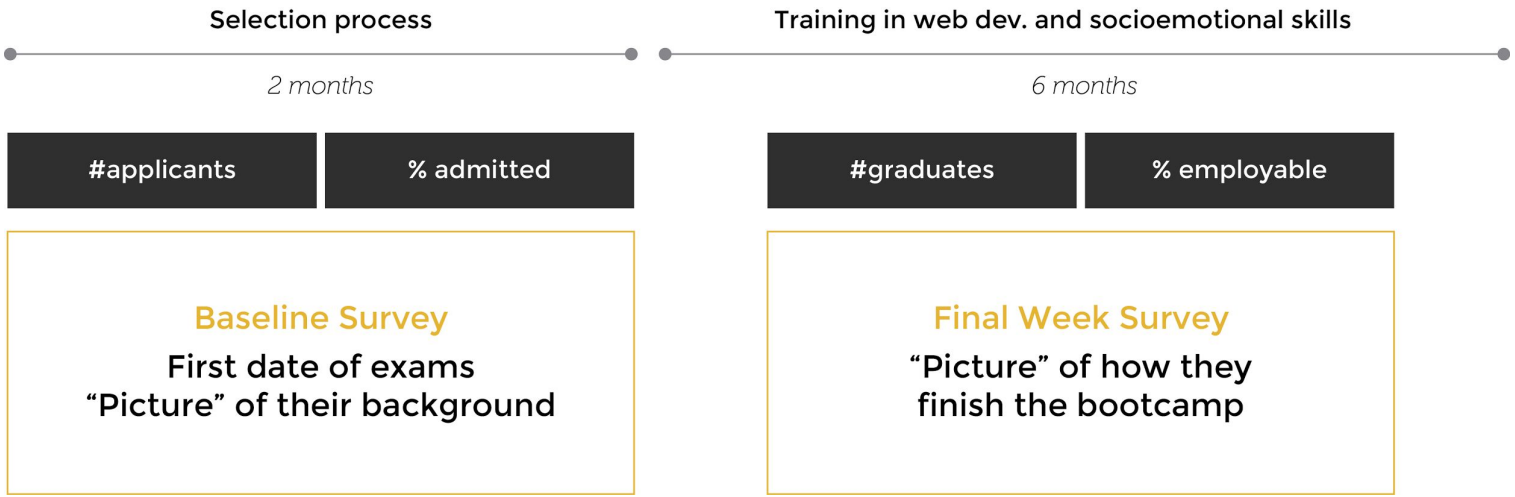
We follow the full journey of our students: from the first contact with Laboratoria when they apply, throughout the training program and after graduation. We do so through periodic follow up through surveys, collecting information about their personal growth and professional development.

A young woman's journey in Laboratoria



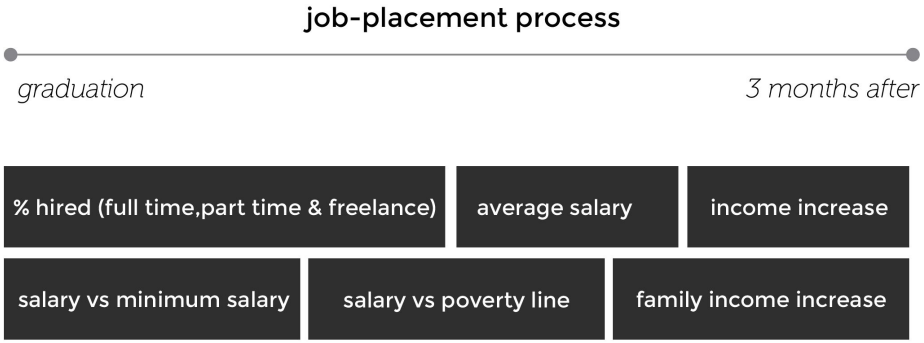
1. students learn web development

We start collecting information the first day of exams during the selection process, and have the first indicators right after the training ends.



2. graduates get a job as web developers

The main impact indicators are the ones related to the new income graduates have after they get a job in the tech sector.



job-placement report

Once the process ends, each local team gives an update of these indicators and specific data to the regional M&E team.

This report is given 3 months after each cohort graduates.

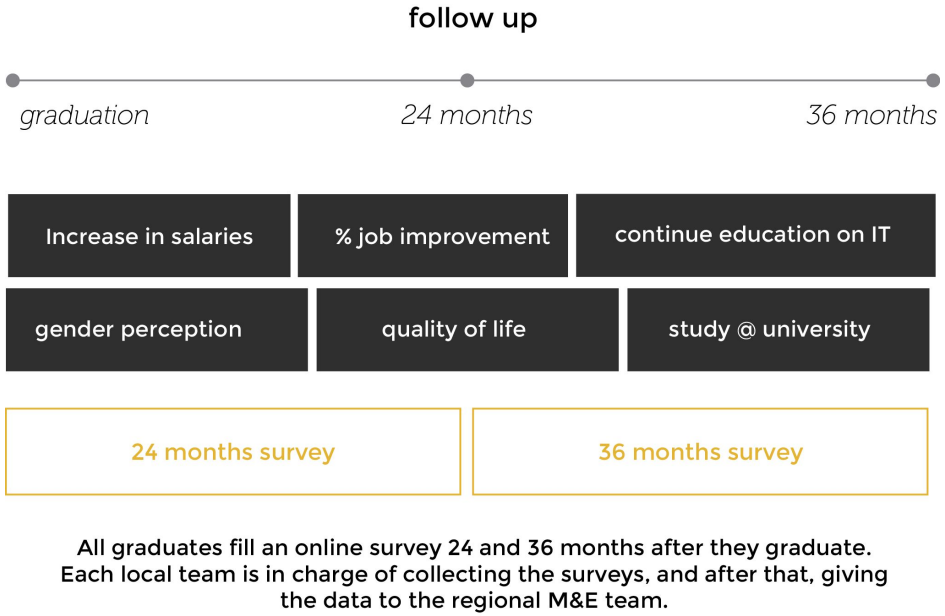
3. graduates develop a career in tech

At this stage we collect data regularly through surveys to follow the professional development of our graduates.

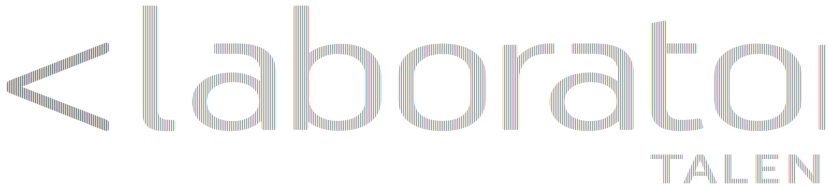
All graduates fill an online survey 6, 12 and 18 months after they graduate. Each local team is in charge of collecting the surveys, and after that, giving the data to the regional M&E team.

4. graduates achieve socio-economic inclusion

At this stage, we map the impact regarding economic improvement, as well as the improvement in their living standards.



All graduates fill an online survey 24 and 36 months after they graduate. Each local team is in charge of collecting the surveys, and after that, giving the data to the regional M&E team.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